

illumination beam (PLIB)/field of view (FOV) through said first light transmission aperture and said first imaging window;

a side PLIIM-based subsystem mounted within said side portion of the housing, and producing and projecting a second planar coplanar laser illumination beam (PLIB)/field of view (FOV) through said second light transmission aperture and said second imaging window;

an electronic product weight scale operably connected to said bottom PLIIM-based subsystem;

a data communication network mounted within the housing, and establishing a high-speed data communication link between said bottom and side PLIIM-based subsystems and said electronic product weight scale; and

wherein each bottom and side PLIIM-based subsystem comprises:

a plurality of visible laser diodes (VLDs) having different color producing wavelengths to produce a multi-spectral planar laser illumination beam (PLIB) from the side and bottom imaging windows; and

a linear electronic image detection array for capturing color images of objects (e.g. produce) as the objects are manually transported past said first and second imaging windows of said bioptical system, along the direction of an indicator arrow, by the user or operator of the system.

Claim 265 (canceled)

Claim 266 (currently amended): ~~The bioptical system of claim 263,~~ A bioptical system which comprises:

a housing having a bottom portion and a side portion;

bottom and side light transmission apertures formed in said bottom and side portions, respectively;

a first imaging window mounted over said first light transmission aperture, and a second imaging window mounted over said second light transmission aperture;

a bottom planar laser illumination and imaging (PLIIM) based subsystem mounted within said bottom portion of the housing, and producing and projecting a first planar coplanar laser illumination beam (PLIB)/field of view (FOV) through said first light transmission aperture and said first imaging window;

a side PLIIM-based subsystem mounted within said side portion of the housing, and producing and projecting a second planar coplanar laser illumination beam (PLIB)/field of view (FOV) through said second light transmission aperture and said second imaging window;

an electronic product weight scale operably connected to said bottom PLIIM-based subsystem;

a data communication network mounted within the housing, and establishing a high-speed data communication link between said bottom and side PLIIM-based subsystems and said electronic product weight scale wherein each PLIIM-based subsystem comprises:

a plurality of visible laser diodes (VLDs) having different color producing wavelengths to produce a multi-spectral planar laser illumination beam (PLIB) from said side and bottom imaging windows; and

an area-type electronic image detection array for capturing color images of objects (e.g. produce) as the objects are presented to the imaging windows of said bioptical system by the user or operator of the system.

Claim 267 (previously presented): A bioptical planar laser illumination and imaging (PLIIM) based product dimensioning, analysis and identification system comprising:

a housing having a bottom portion and a side portion;

bottom and side light transmission apertures formed in said bottom and side portions, respectively;

a first imaging window mounted over said first light transmission aperture, and a second imaging window mounted over said second light transmission aperture;

a bottom PLIIM-based subsystem mounted within said bottom portion of the said housing, and employing (i) a first linear array of visible laser diodes (VLDs) having different color producing wavelengths so as to produce and project a first multi-spectral planar laser illumination beam (PLIB) through said first light transmission aperture and said first imaging window, and (ii) a first linear electronic image detection array having image formation optics with a first field of view (FOV) that is aligned with said first multi-spectral PLIB in a coplanar relationship so as to capture images of objects being moved past said first imaging window; and

a side PLIIM-based subsystem mounted within said side portion of said housing, and employing a second linear array of visible laser diodes (VLDs) having different color producing wavelengths so as to produce and project a second multi-spectral planar laser illumination beam (PLIB) through said second light transmission aperture and said second imaging window, and a second linear electronic image detection array having image formation optics with a second field of view (FOV) that is aligned with said second multi-spectral PLIB in a coplanar relationship so as to capture images of objects being moved past said second imaging window.

Claim 268 (previously presented): A bioptical planar laser illumination and imaging (PLIIM) based object dimensioning, analysis and identification system comprising:

a housing having a bottom portion and a side portion;  
bottom and side light transmission apertures formed in bottom and side portions,  
respectively;

a first imaging window mounted over said first light transmission aperture, and a second  
imaging window mounted over said second light transmission aperture;

a bottom PLIIM-based subsystem mounted within said bottom portion of said housing,  
and employing (i) a first linear array of visible laser diodes (VLDs) having different color  
producing wavelengths so as to produce and project a first multi-spectral planar laser  
illumination beam (PLIB) through said first light transmission aperture and said first imaging  
window, and (ii) a first area-type electronic image detection array having image formation optics  
with a first 3-D field of view (FOV), through which said first PLIB is automatically swept in a  
coplanar relationship with at least a portion of said first 3-D FOV so as to capture images of  
objects being moved past said first imaging window; and

a side PLIIM-based subsystem mounted within said side portion of said housing, and  
employing (i) a second linear array of visible laser diodes (VLDs) having different color  
producing wavelengths so as to produce and project a second multi-spectral planar laser  
illumination beam (PLIB) through said second light transmission aperture and said second  
imaging window, and (ii) a second area-type electronic image detection array having image  
formation optics with a second 3-D field of view (FOV), through which said first multi-spectral  
PLIB is automatically swept in a coplanar relationship with at least a portion of said 3-D FOV so  
as to capture images of objects being moved past said second imaging window.

Claim 269 (previously presented): A bioptical planar laser illumination and imaging (PLIIM)  
based object dimensioning, analysis and identification system comprising:

a pair of PLIIM-based object identification and attribute acquisition subsystems,  
wherein each PLIIM-based object identification and attribute acquisition subsystem  
produces a multi-spectral planar laser illumination beam (PLIB) for illuminating objects during  
imaging, and employs a linear electronic image detection array with image formation optics  
having a field of view (FOV) that is coplanar with said multi-spectral PLIB; and

wherein said bioptical PLIIM-based object identification and attribute acquisition  
subsystem is programmed to analyze captured images of objects and determine the  
shape/geometry, dimensions and/or color thereof.

Claim 270 (previously presented): A bioptical planar laser illumination and imaging (PLIIM)  
based object dimensioning, analysis and identification system comprising:

a pair of PLIIM-based object identification and attribute acquisition subsystems,

wherein each PLIIM-based object identification and attribute acquisition subsystem produces a multi-spectral planar laser illumination beam (PLIB) for illuminating objects during imaging, and employs an area-type electronic image detection array with image formation optics having a field of view (FOV), through which said multi-spectral PLIB is automatically swept in a coplanar relationship during illumination and imaging operations; and

wherein said bioptical PLIIM-based object identification and attribute acquisition subsystem is programmed to analyze captured images of objects and determine the shape/geometry, dimensions and/or color thereof.

Claim 271 (previously presented): A bioptical planar laser illumination and imaging (PLIIM) based object dimensioning, analysis and identification system comprising a pair of PLIIM-based package identification and dimensioning subsystems, wherein each said subsystem employs a 2-D electronic image detection array and is programmed to analyze captured images of objects and determine the shape/geometry, dimensions and/or color thereof.

Claim 272 (previously presented): A bioptical planar laser illumination and imaging (PLIIM) based object identification, dimensioning and analysis system comprising a pair of PLIIM-based package identification systems arranged within a compact point-of-sale (POS) housing having bottom and side light transmission apertures, located beneath a pair of spatially-isolated imaging windows.